

## EXPERIMENTS: MUDDYING THE WATERS

This experiment can be used to support learning for Activity Cards WATER TEMPERATURE, VEGETATION, LAND USE, NUTRIENTS, RUN OFF and FLOW, SILT and SEDIMENT.

### PURPOSE

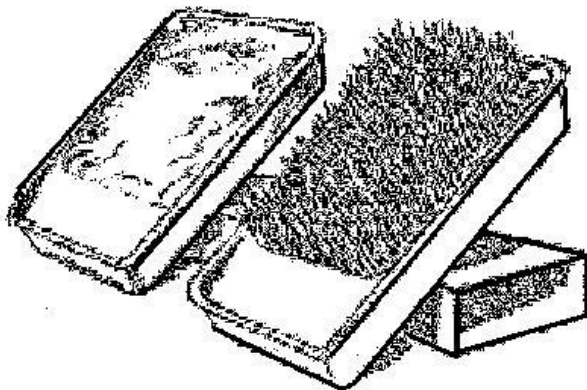
To investigate the rate of run off on different surfaces.

### EQUIPMENT:

Materials needed for each group:

- This experiment can also be done as a demonstration
- 2 plastic containers or tote trays
- 2 baking trays, or similar
- Potting soil and or sand
- Brick, block of wood or something similar to prop up baking trays
- Water
- Clear spray bottles with measurements marked
- Calculator
- Turf (baking tray size)
- Measuring beakers

### PROCEDURE:



1. Prepare 2 baking trays, one with potting soil and one with turf, as shown in the diagram:
2. Place each one inside a tote tray
3. Prop each tray up at the same angle using props

4. Discuss and predict what will happen when water is added
5. Spray an equivalent amount of water onto each tray. (This represents rain)
6. Wait until the water has collected in the space at the end of the tray (the same length of time for each tray).
7. Carefully pour the water which has collected into measuring beakers.
8. Observe immediately after collection and again after twenty minutes. What differences do you observe?

Variation:

- Change the rate at which you add the water (the 'flow') eg pour the water on, rather than spraying it
- Add 'pollutants' (powdered milk) to the soil and forested landscapes. Repeat the experiment. (You may need to add to the table below)
- Compare by observation the amount of pollutants.

## RESULTS

Compare the colour and the quantity of run-off from each sample. You may want to use the table below:

Land Use	Prediction	Colour of water	Quantity of water
Uncovered soil			
Turfed soil			

Write summary statements of your observations.

## CONCLUSIONS

Discuss: Which tray released the largest amount of water?

Was there a variation in the colour of the two samples of water collected? What does this suggest?

What does this tell us about how land use can affect water quality?

## SOLVING THE CRIME

What possible land uses in the crime sites could lead to a decrease in water quality?

Which land uses result in more run-off and erosion?

How can run-off and erosion be reduced?

In which crime sites are there problems with land use and a resulting decrease in water quality?